

Fig.1

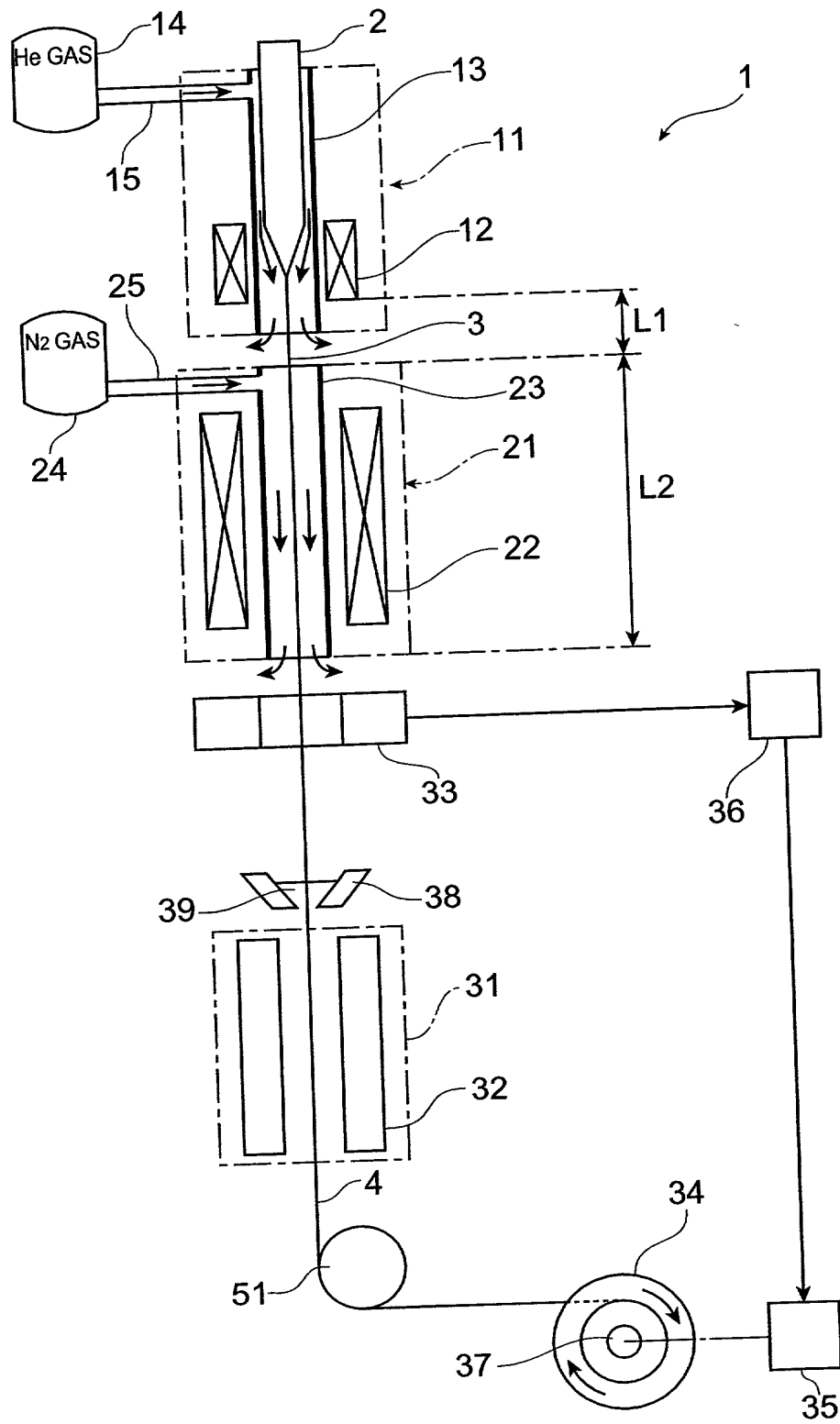


Fig.2

	1ST GAS	2ND GAS	DRAWING RATE (m/s)	TENSION (N)	HEATING FURNACE TEMPERATURE (°C)	ENTERING TEMPERATURE (°C)	AVERAGE COOLING RATE (°C/s)	TRANSMISSION LOSS (dB/km)	RAYLEIGH SCATTERING COEFFICIENT (dB $\mu\text{m}^4/\text{km}$)	GLASS DIAMETER FLUCTUATION (μm)
EXAMPLE1	He	N ₂	4	0.245	1400	1600	600~800	0.170	0.84	± 0.1
EXAMPLE2	He	N ₂	4	0.785	1400	1600	500~700	0.182	0.92	± 0.1
COMPARATIVE EXAMPLE1	He	He	4	0.245	—	—	ABOUT 30000	0.18	0.9	—
COMPARATIVE EXAMPLE2	He	N ₂	4	0.245	—	—	ABOUT 4000~ 5000	0.174	0.86	—
COMPARATIVE EXAMPLE3	N ₂	N ₂	4	0.245	1400	—	—	0.170	0.84	± 0.3

Fig.3A

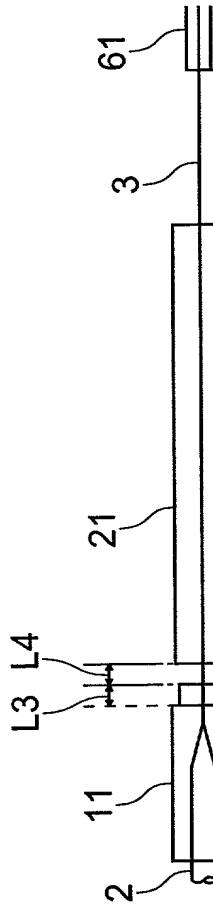


Fig.3B

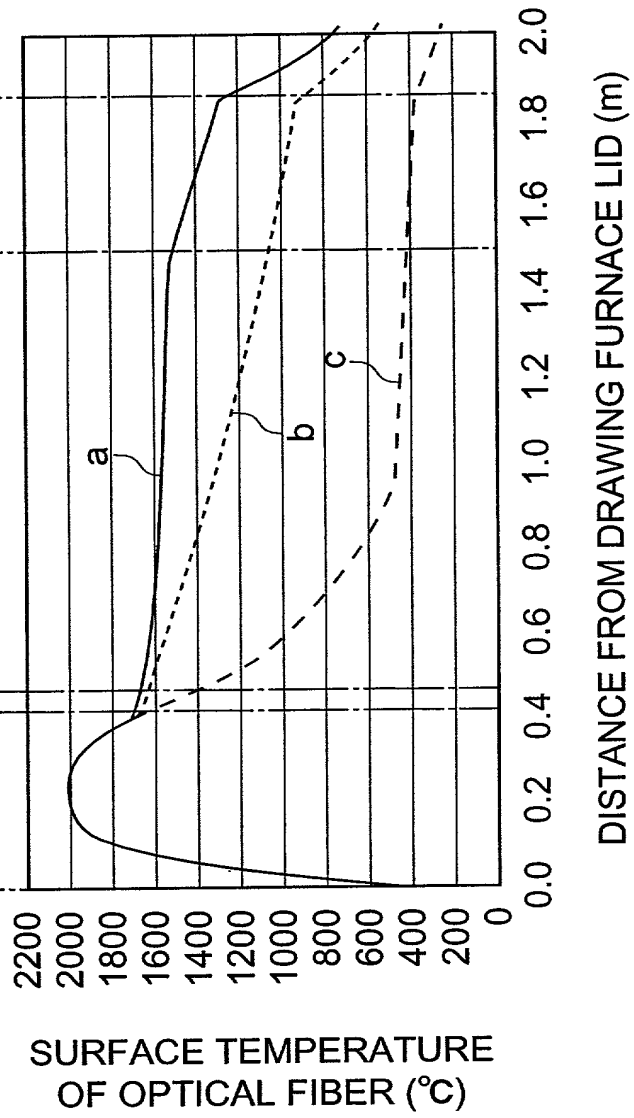


Fig.4

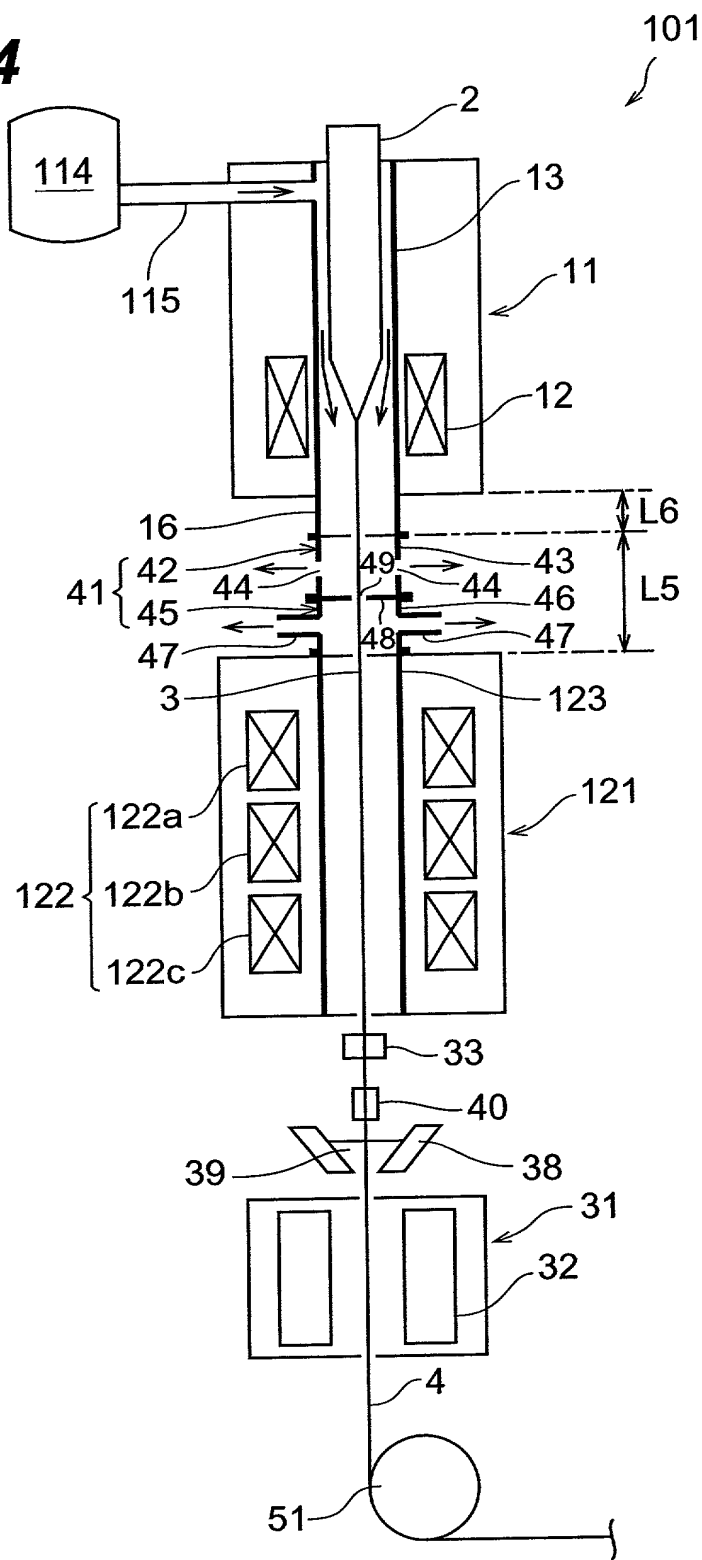


Fig.5

	OPTICAL FIBER PREFORM OUTER DIAMETER (mm)	1ST GAS	2ND GAS	DRAWING RATE (m/min)	GLASS DIAMETER FLUCTUATION (μ m)	BENDING ABNORMALITY RATIO (%)	No. OF SPIKES (TIMES)	TRANSMISSION LOSS (dB/km)	RAYLEIGH SCATTERING COEFFICIENT (dB μ m ⁴ /km)
EXAMPLE3	40	N ₂	AIR	400	± 0.15	0	0	0.167	0.835
EXAMPLE4	80	He	AIR	400	± 0.15	0	0	0.168	0.84
EXAMPLE5	80	He	He	400	± 0.15	0	0	0.169	0.845
COMPARATIVE EXAMPLE4	40	N ₂	AIR	400	± 0.8	20	0	0.168	0.84
COMPARATIVE EXAMPLE5	40	N ₂	N ₂	400	± 0.15	0	12	0.167	0.835
COMPARATIVE EXAMPLE6	40	N ₂	N ₂	400	± 0.15	0	1	0.171	0.855

Fig.6

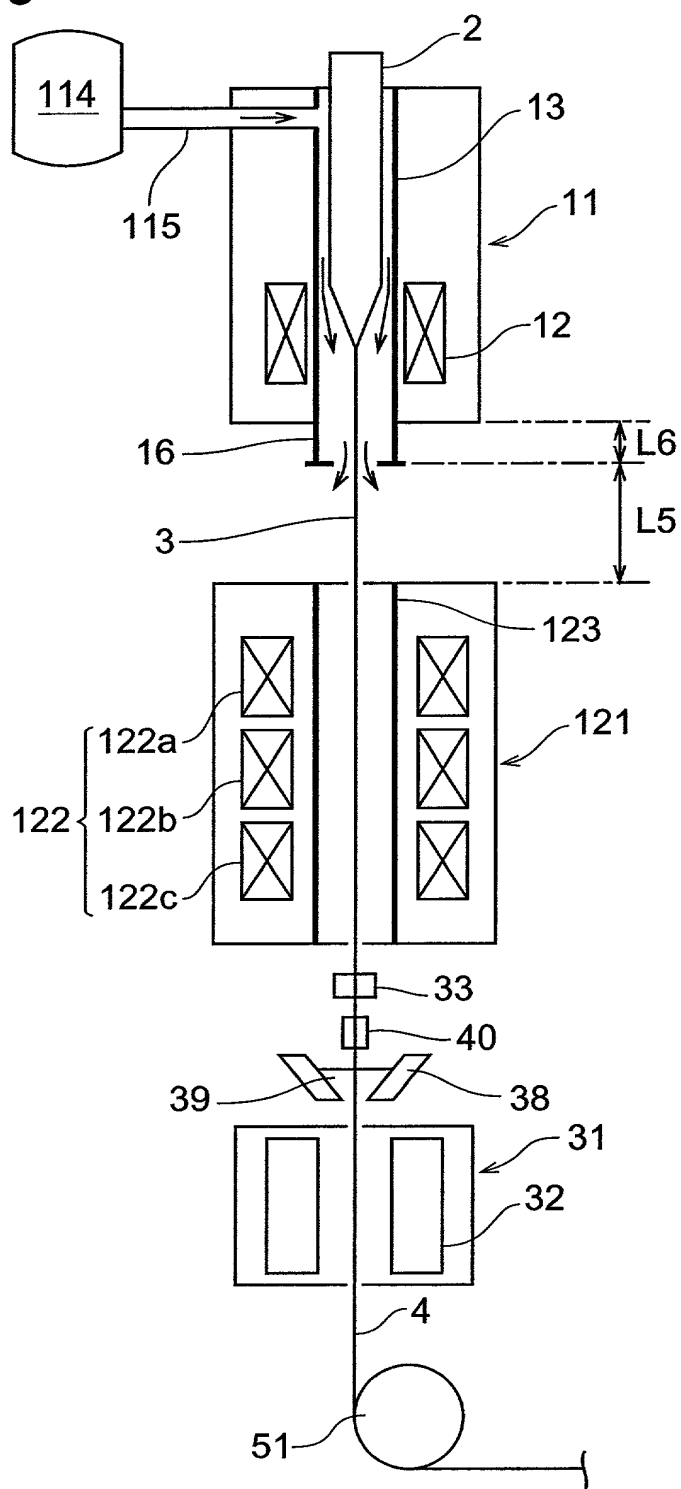
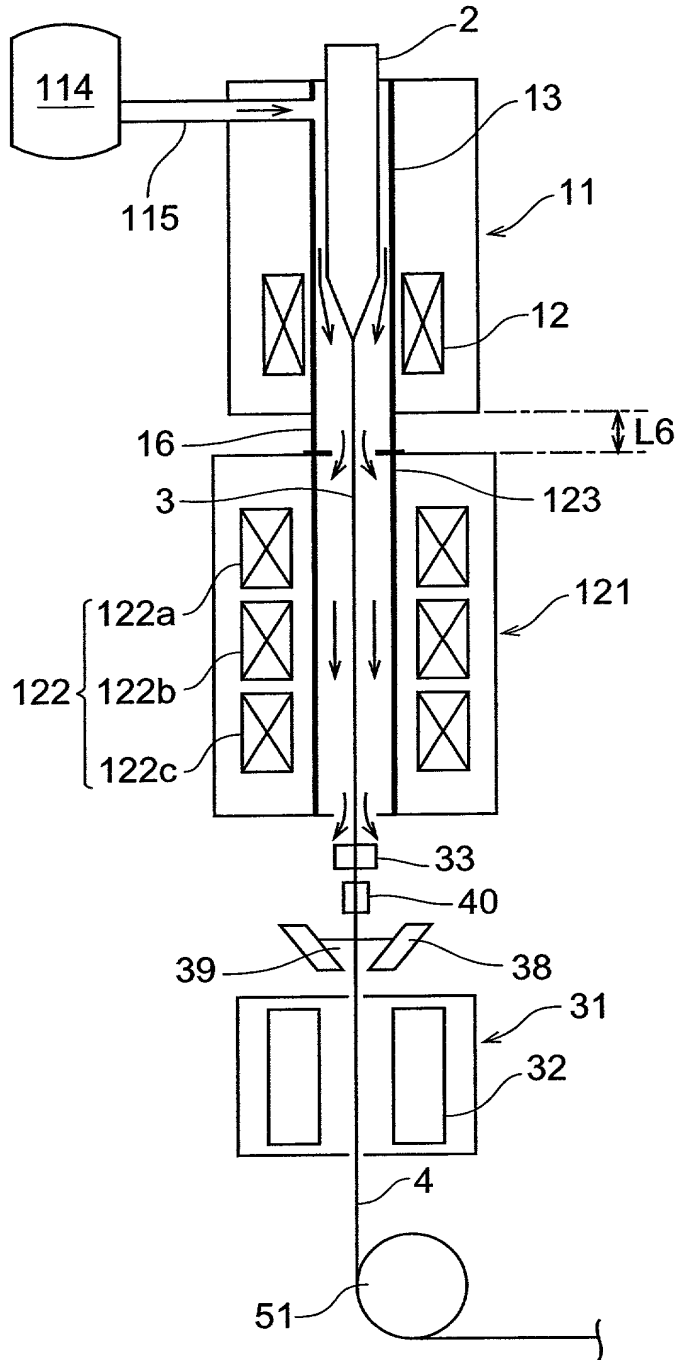


Fig.7



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Fig.8

